Kentucky Epidemiologic Notes & Reports

CABINET FOR HEALTH SERVICES
DEPARTMENT FOR PUBLIC HEALTH
DIVISION OF EPIDEMIOLOGY

Volume 31 Number 8

August 1996

The Reemergence Of Measles: Pacific Northwest

Although 1995 saw a record low number of measles reports nationwide (none among Kentucky residents), an outbreak occurred in the northwest portion of the United States. As of June 24, 1996 there were 63 confirmed cases in Juneau, Alaska and 45 cases in Washington State.

Surveillance activities have been intensified throughout the Northwest, and physicians and other health care professionals were urged to "think measles" when evaluating patients with fever, rash, and/or the "3 C's" - cough, coryza, and conjunctivitis.

Several lessons are emerging from this ongoing investigation. Most importantly,

- sustained transmission can occur in populations with very high rates of single-dose immunization;
- misdiagnosis is common;
- patient isolation policies are often inadequate or ignored;
- reporting of suspect cases is often ignored or delayed, impairing control efforts;
- transmission in medical settings puts health care workers at risk and can readily amplify case counts once measles is introduced into a community.

Measles is one of the most highly communicable infections known. Viruses are shed in the nasopharyngeal secretions and other effluvia of infected persons in the days immediately preceding and following rash appearance. Viruses spread by coughing and sneezing become suspended in ambient air currents and can remain infectious for hours. The transmission rate approaches 100% amongst susceptible close contacts of an infectious case, and a significant risk of airborne transmission can persist long after a case has passed through a building or the enclosed space, depending on prevailing air currents. Transmission is commonly documented in medical office settings, hospital emergency rooms, schools, and anywhere infectious persons may cross the paths of susceptibilities.

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Clinically, measles usually begins with a mild to moderate fever and malaise. Within 24 hours there is conjunctivitis/photophobia, coryza, an increasingly severe cough, and often swollen lymph nodes. Koplik's spots, typically seen only for a day or two before rash onset, are bluish-white spots on a red background, appearing on the buccal mucosa. The rash usually begins 3-4 days (range: 1-7 days) after onset of prodromal symptoms with flat, faint red eruptions on the head and neck. The rash spreads quickly over the upper arms and torso, becoming maculopapular. Lesions frequently coalesce and in severe cases may become confluent. Leukopenia is common. Severe illness is most common in adults and the very young; complications include pneumonia (primary or secondary), otitis, and encephalitis. The case fatality rate in the U.S. has been 2-3/1,000 in recent years. It is much higher in some parts of the world, particularly where malnutrition is widespread.

The diagnosis can be confirmed by demonstration of IgM antibodies, which are almost always present by 4-5 days after rash onset and are detectable for at least 3-4 weeks. Paired sera can also be assayed for a change in IgG titer. IgG and IgM antibody testing for measles is available at the State Laboratory. In the effort to eliminate measles, the Centers for Disease Control and Prevention (CDC) wants to isolate measles virus in tissue culture and do genetic typing of the virus on as many measles cases as practical. The typing helps in

MEASLES (Continued from page 1)

understanding transmission patterns of the disease. The best chance of culturing the virus is early in the illness. Thus instead of waiting until the measles diagnosis is proven, specimens (nose or throat, urine, heparinized blood) can be collected at the same time as measles serology. When measles is suspected (typical maculopapular rash, fever over 102 and cough, coryza, conjunctivitis and/or Koplik spots), the Immunization Program should be contacted at (502) 564-4478 for consultation on the need for specimen collection for virus isolation. The program will arrange prompt delivery of special kits for this purpose. The kits are held in limited quantities by Immunization Program field representatives around the state and at the central office.

CONTROL MEASURES

Immunization is the cornerstone of measles control. The number of cases reported in the United States has fallen over 99% since prevaccine years. Within the past generation, however, measles has become a rarity that most American physicians will never see (and even fewer will ever diagnose).

Persons born in or after 1957 without a definite history of measles should be vaccinated. While measles vaccine, typically administered in a trivalent measles-mumps-rubella (MMR) is very safe and effective, efficacy is not 100%.

Kentucky requires all enterers into 6th grade in public and private schools to have two MMR's and plans to require all school enterers aged 4 and above to have two MMR's beginning late in 1996.

Because they are at relatively high risk of exposure to patients with measles, we also recommend that health care workers without evidence of immunization-regardless of age - receive 2 doses of measles vaccine. Hospitals and other health care facilities should review the immunization status of their employees, and renew or adopt a policy of promptly providing respiratory isolation to patients who present with possible measles.

As we are faced with the possible threat of another measles invasion, your assistance in not waiting for laboratory confirmation to report suspicious rash illnesses to your local health department will be most valuable.

Article was adapted from *CD Summary* Vol. 45, No. 10, May 14, 1996, Oregon Health Division.

Outbreaks of *Cyclospora cayetanensis* Infection - United States, 1996

The following article is reprinted from *MMWR,* June 28, 1996, Vol. 45, No. 25

Cyclospora cayetanensis (previously termed cyanobacterium-like body) is a recently characterized coccidian parasite (1); the first known cases of infection in humans were diagnosed in 1977 (2). Before 1996, only three outbreaks of *Cyclospora* infection had been reported in the United States (3-5). This report describes the preliminary findings of an ongoing outbreak investigation by the South Carolina Department of Health and Environmental Control (SCDHEC) and summarizes the findings from investigations in other states.

South Carolina

On June 14, the SCDHEC was notified of diarrheal illness among persons who attended a luncheon near Charleston on May 23. A case of *Cyclospora infection* was defined as diarrhea (three or more loose stools per day or two or more stools per day if using antimotility drugs) after attending the luncheon. All 64 attendees were interviewed. Of the 64 persons, 37 (58%) had *Cyclospora* infection, including seven with laboratory-confirmed infection. The median incubation period was 7.5 days (range: 1-23 days).

Based on univariate analysis by the SCDHEC, food items associated with illness included raspberries (RR=5.6; 95% CI=2.3-13.7), strawberries (RR=2.2; 95% CI=1.0-5.1), and potato salad (RR=1.9; 95% CI=1.3-2.7). On May 23, a total of 95 persons attended a luncheon in an adjacent room and were served strawberries obtained from the same source but were not served raspberries; no cases were identified among these persons. One person who ate raspberries at the establishment that evening developed laboratory-confirmed infection; she had not attended either luncheon or eaten strawberries.

Other investigations

In May and June 1996, social event-related clusters of cases and/or sporadic cases of *Cyclospora* infection were reported in at least 10 states and in Ontario, Canada. Several hundred laboratory-confirmed cases have been reported to CDC. Most cases have occurred in immunocompetent adults.

Preliminary evidence suggests that, in these outbreaks, consumption of fresh fruit -- raspberries and mixtures of berries and other fruits (precluding determination of which fruit in the mixture was associated with illness) -- may be associated with *Cyclospora* infection. CDC, the Food and Drug Administration (FDA), and health officials in state and local health departments and Canada are collaborating to determine the extent and causes of the outbreaks, the sources of contamination, and whether transmission is ongoing. Additional efforts include the use of the five-site CDC/U.S. Department of Agriculture/FDA active foodborne diseases surveillance network (established in 1995; collaborating sites include Atlanta and portions of California, Connecticut, Minnesota, and Oregon). Although standardized methods are not yet available, FDA, CDC, and others are testing samples of produce for *Cyclospora*.

Editorial Note: Although *Cyclospora is* transmitted by the fecal-oral route, direct person-to-person transmission is unlikely because excreted oocysts require days to weeks under favorable environmental conditions to become infectious (i.e., sporulate). Whether animals serve as sources of infection for humans is unknown. Most reported cases have occurred during spring and summer. The average incubation period is 1 week, and illness may be protracted (from days to weeks) with frequent, watery stools and other gastrointestinal symptoms; symptoms may remit and relapse.

The diameter of *Cyclospora* oocysts is 8-10 um, approximately twice that of *Cryptosporidium parvum*. Oocysts can be identified in stool by examination of wet mounts under phase microscopy, use of modified acid-fast stains (oocysts are variably acid-fast), or demonstration of autofluorescence with ultraviolet epifluorescence microscopy. However, these procedures are not routine for most clinical laboratories, and confirmation of the diagnosis by an experienced reference laboratory is recommended. Demonstration of sporulation provides definitive evidence for the diagnosis (1). Infection with *Cyclospora* can be treated with a 7-day course of oral trimethoprim (TMP)-sulfamethoxazole (SMX) (for adults, TMP 160 mg plus SMX 800 mg twice daily; for children, TMP 5 mg/kg plus SMX 25 mg/kg twice daily) (6). Treatment regimens for patients who cannot tolerate sulfa drugs have not yet been identified.

The preliminary findings of these investigations suggest that consumption of some fresh fruits has been associated with increased risk for illness. However, the investigations have not yet determined specific sources or modes of contamination. Potential sources of infection include seasonal produce that orginates from different domestic and international locations at different times of the year; the complex distribution routes and handling of these foods complicate tracebacks and other key aspects of the investgations. As always, produce to be eaten raw should be thoroughly washed. This practice may not entirely eliminate the risk of transmission of *Cyclospora*. Health-care providers should consider *Cyclospora* infection in persons with prolonged diarrheal illness and specifically request laboratory testing for this parasite; cases should be reported to local and state health departments. Health departments that identify cases of *Cyclospora* infection should contact CDC's Division of Parasitic Diseases, National Center for Infectious Diseases, telephone (770) 488-7760 or the Communicable Disease Branch at (502) 564-3261.

REFERENCES

1 Ortega YR, Sterling CR, Gilman RH, Cama VA, Daz F. *Cyclospora* species -- a new protozoan pathogen of humans. N Engl J Med 1993;328:1308-12.
2 Ashford RW. Occurrence of an undescribed coccidian in man in Papua New Guinea. Ann Trop Med Parasitol 1979;73:497-500.
3 Huang P, Weber JT, Sosin DM, et al. The first reported outbreak of diarrheal illness associated with *Cyclospora* in the United States. Ann Intern Med 1995;123:409-14.
4 Carter RJ, Guido F, Jacquette G, Rapoport M. Outbreak of cyclosporiasis at a country club -- New York, 1995 {Abstract}. In: 45th Annual Epidemic Intelligence Service (EIS) Conference. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, April 1996:58.
5 Koumans EH, Katz D, Malecki J, et al. Novel parasite and mode of transmission: *Cyclospora* infection -- Florida {Abstract}. In: 45th Annual Epidemic Intelligence Service (EIS) Conference. Atlanta, Georgia: US Department of Health and Human Services, Public Health Service, April 1996:60.
6 Hoge CW, Shlim DR, Ghimire M, et al. Placebo-controlled trial of co-trimoxazole for cyclospora infections among travellers and foreign residents in Nepal. Lancet 1995;345:691-3.

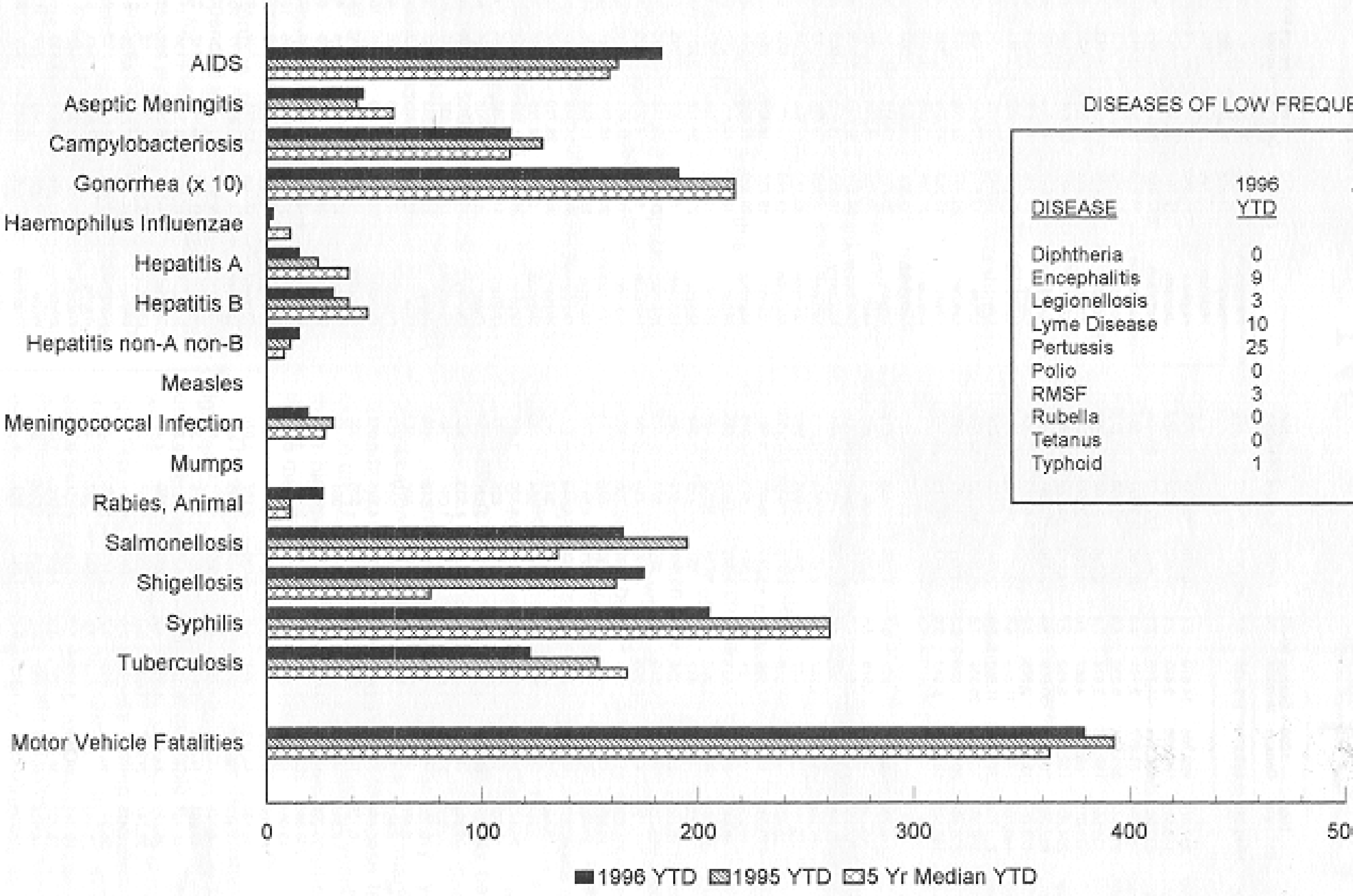
Kentucky Population Statistics

	1995 Estimate	1990 Census	Change 90-95 Number	%	Births	Deaths	Net Migration
Kentucky	3,860,219	3,686,891	173,328	4.7	280,723	189,257	81,862
ADDs							
Barren River	237,376	222,766	14,610	6.6	16,170	12,349	10,789
Big Sandy	168,513	165,020	3,493	2.1	12,482	8,527	-462
Bluegrass	632,081	590,336	41,745	7.1	45,625	27,289	23,409
Buffalo Trace	54,068	51,877	2,191	4.2	3,780	3,271	1,682
Cumb. Valley	232,344	223,024	9,320	4.2	17,384	11,882	3,818
Fivco	135,659	132,685	2,974	2.2	8,886	7,232	1,320
Gateway	71,013	66,346	4,667	7.0	4,792	3,273	3,148
Green River	204,804	199,342	5,462	2.7	14,119	10,466	1,809
Kentuckiana	827,050	796,491	30,559	3.8	62,330	40,861	9,090
Ky. River	126,284	123,495	2,789	2.3	9,356	6,513	-54
Lake Cumb.	185,608	174,283	11,325	6.5	12,363	10,100	9,062
Lincoln Trail	230,704	219,101	11,603	5.3	17,698	9,155	3,060
Northern Ky.	360,338	334,979	25,359	7.6	28,196	15,703	12,856
Pennyrile	206,488	205,800	688	0.3	15,931	11,421	-3,822
Purchase	187,889	181,346	6,543	3.6	11,611	11,215	6,147
Counties							
Adair	16,292	15,360	932	6.1	1,059	939	812
Allen	15,706	14,628	1,078	7.4	1,203	948	823
Anderson	17,152	14,571	2,581	17.7	1,217	665	2,029
Ballard	8,232	7,902	330	4.2	473	594	451
Barren	35,768	34,001	1,767	5.2	2,238	2,084	1,613
Bath	10,159	9,692	467	4.8	680	593	380
Bell	30,490	31,506	-1,016	-3.2	2,316	1,902	-1,430
Boone	70,097	57,589	12,508	21.7	5,249	2,122	9,381
Bourbon	19,257	19,236	21	0.1	1,363	1,029	-313
Boyd	50,613	51,150	-537	-1.0	3,289	2,961	-865
Boyle	26,699	25,641	1,058	4.1	1,714	1,389	733
Bracken	8,209	7,766	443	5.7	581	485	347
Breathitt	15,539	15,703	-164	-1.0	1,205	841	-528
Breckinridge	16,722	16,312	410	2.5	980	979	409
Bullitt	56,127	47,567	8,560	18.0	4,009	1,450	6,001
Butler	11,634	11,245	389	3.5	727	708	370
Caldwell	13,207	13,232	-25	-0.2	793	872	54
Calloway	32,506	30,735	1,771	5.8	1,671	1,646	1,746
Campbell	87,111	83,866	3,245	3.9	6,754	4,245	736
Carlisle	5,443	5,238	205	3.9	303	347	249
Carroll	9,668	9,292	376	4.0	721	604	259
Carter	26,172	24,340	1,832	7.5	1,983	1,320	1,169
Casey	14,508	14,211	297	2.1	1,054	835	78
Christian	65,666	68,941	-3,275	-4.8	7,085	2,821	-7,539
Clark	30,822	29,496	1,326	4.5	2,207	1,533	652
Clay	22,835	21,746	1,089	5.0	1,977	1,051	163
Clinton	9,309	9,135	174	1.9	586	548	136
Crittenden	9,470	9,196	274	3.0	523	606	357
Cumberland	6,957	6,784	173	2.6	442	503	234
Daviess	90,662	87,189	3,473	4.0	6,692	4,305	1,086
Edmonson	10,758	10,357	401	3.9	577	526	350
Elliott	6,543	6,455	88	1.4	398	364	54
Estill	15,646	14,614	1,032	7.1	1,094	818	756
Fayette	238,885	225,366	13,519	6.0	18,292	9,183	4,410
Fleming	13,054	12,292	762	6.2	850	808	720
Floyd	44,100	43,586	514	1.2	3,340	2,419	-407
Franklin	46,136	44,143	1,993	4.5	3,080	2,157	1,070
Fulton	7,317	8,271	-954	-11.5	554	645	-863
Gallatin	6,175	5,393	782	14.5	502	301	581
Garrard	12,994	11,579	1,415	12.2	761	675	1,329
Grant	18,763	15,737	3,026	19.2	1,420	767	2,373
Graves	35,139	33,550	1,589	4.7	2,252	2,159	1,496
Grayson	22,744	21,050	1,694	8.0	1,506	1,162	1,350
Green	10,416	10,371	45	0.4	597	651	99
Greenup	36,992	36,742	250	0.7	2,177	1,825	-102
Hancock	8,483	7,864	619	7.9	508	327	438
Hardin	90,345	89,240	1,105	1.2	7,819	2,951	-3,763
Harlan	36,237	36,574	-337	-0.9	2,668	2,000	-1,005
Harrison	16,978	16,248	730	4.5	1,125	1,036	641
Hart	16,209	14,890	1,319	8.9	1,047	881	1,153

	1995 Estimate	1990 Census	Change 90-95 Number	%	Births	Deaths	Net Migration
Henderson	44,431	43,044	1,387	3.2	2,926	2,132	593
Henry	14,208	12,823	1,385	10.8	1,006	759	1,138
Hickman	5,346	5,566	-220	-4.0	277	433	-64
Hopkins	46,640	46,126	514	1.1	3,260	2,823	77
Jackson	12,702	11,955	747	6.2	891	594	450
Jefferson	672,918	665,123	7,795	1.2	52,081	35,595	-8,691
Jessamine	34,218	30,508	3,710	12.2	2,670	1,241	2,281
Johnson	24,063	23,248	815	3.5	1,683	1,290	422
Kenton	145,474	142,031	3,443	2.4	11,949	6,480	-2,026
Knott	18,414	17,906	508	2.8	1,247	820	81
Knox	31,371	29,676	1,695	5.7	2,522	1,620	793
Larue	12,641	11,679	962	8.2	779	682	865
Laurel	48,076	43,438	4,638	10.7	3,374	2,006	3,270
Lawrence	15,339	13,998	1,341	9.6	1,039	762	1,064
Lee	7,858	7,422	436	5.9	472	455	419
Leslie	13,616	13,642	-26	-0.2	975	588	-413
Letcher	26,957	27,000	-43	-0.2	1,887	1,481	-449
Lewis	13,365	13,029	336	2.6	990	739	85
Lincoln	21,485	20,045	1,440	7.2	1,478	1,085	1,047
Livingston	9,365	9,062	303	3.3	560	620	363
Logan	25,774	24,416	1,358	5.6	1,870	1,436	924
Lyon	7,752	6,624	1,128	17.0	336	379	1,171
McCracken	64,577	62,879	1,698	2.7	4,381	3,758	1,075
McCreary	16,612	15,603	1,009	6.5	1,379	883	513
McLean	9,705	9,628	77	0.8	669	643	51
Madison	63,112	57,508	5,604	9.7	4,305	2,424	3,723
Magoffin	13,743	13,077	666	5.1	1,133	619	152
Marion	16,755	16,499	256	1.6	1,264	877	-131
Marshall	29,329	27,205	2,124	7.8	1,700	1,633	2,057
Martin	12,897	12,526	371	3.0	1,132	596	-165
Mason	17,214	16,666	548	3.3	1,208	1,112	452
Meade	27,371	24,170	3,201	13.2	2,159	712	1,754
Menifee	5,387	5,092	295	5.8	344	264	215
Mercer	20,045	19,148	897	4.7	1,431	1,200	666
Metcalfe	9,318	8,963	355	4.0	648	600	307
Monroe	11,677	11,401	276	2.4	909	748	115
Montgomery	20,582	19,561	1,021	5.2	1,550	1,019	490
Morgan	13,344	11,648	1,696	14.6	816	587	1,467
Muhlenberg	31,709	31,318	391	1.2	1,909	1,920	402
Nelson	33,422	29,710	3,712	12.5	2,511	1,261	2,462
Nicholas	6,999	6,725	274	4.1	457	427	244
Ohio	21,555	21,105	450	2.1	1,380	1,314	384
Oldham	41,011	33,263	7,748	23.3	2,338	975	6,385
Owen	9,589	9,035	554	6.1	567	562	549
Owsley	5,384	5,036	348	6.9	342	337	343
Pendleton	13,461	12,036	1,425	11.8	1,004	622	1,013
Perry	31,286	30,283	1,003	3.3	2,650	1,613	-34
Pike	73,710	72,583	1,127	1.6	5,194	3,603	-464
Powell	12,211	11,686	525	4.5	931	515	109
Pulaski	54,570	49,489	5,081	10.3	3,369	2,691	4,403
Robertson	2,226	2,124	102	4.8	151	127	78
Rockcastle	15,417	14,803	614	4.1	997	831	448
Rowan	21,541	20,353	1,188	5.8	1,402	810	596
Russell	15,856	14,716	1,140	7.7	1,047	946	1,039
Scott	27,813	23,867	3,946	16.5	1,971	1,024	2,999
Shelby	27,696	24,824	2,872	11.6	1,889	1,376	2,359
Simpson	16,084	15,145	939	6.2	1,159	849	629
Spencer	8,178	6,801	1,377	20.2	568	345	1,154
Taylor	22,677	21,146	1,531	7.2	1,584	1,161	1,108
Todd	11,182	10,940	242	2.2	814	656	84
Trigg	11,497	10,361	1,136	11.0	651	724	1,209
Trimble	6,912	6,090	822	13.5	439	361	744
Union	16,499	16,557	-58	-0.4	1,017	812	-263
Warren	84,448	77,720	6,728	8.7	5,792	3,569	4,505
Washington	10,704	10,441	263	2.5	680	531	114
Wayne	18,411	17,468	943	5.4	1,246	943	640
Webster	13,469	13,955	-486	-3.5	927	933	-480
Whitley	35,216	33,326	1,890	5.7	2,639	1,878	1,129
Wolfe	7,230	6,503	727	11.2	578	378	527
Woodford	21,629	19,955	1,674	8.4	1,529	888	1,033

Source: Kentucky State Data Center, Urban Studies Institute, University of Louisville

CASES OF SELECTED REPORTABLE DISEASES IN KENTUCKY, YEAR TO DATE (YTD) THROUGH JUNE 1996



DISEASES OF LOW FREQUENCY

DISEASE	1996 YTD	1995 ANNUAL TOTAL
Diphtheria	0	0
Encephalitis	9	25
Legionellosis	3	10
Lyme Disease	10	16
Pertussis	25	27
Polio	0	0
RMSF	3	16
Rubella	0	0
Tetanus	0	0
Typhoid	1	0

Disease numbers reflect only those cases which meet the surveillance definition.

KENTUCKY EPIDEMIOLOGIC NOTES & REPORTS
Printed With State Funds
by the
COMMONWEALTH OF KENTUCKY
CABINET FOR HEALTH SERVICES
DEPARTMENT FOR PUBLIC HEALTH
275 EAST MAIN STREET
FRANKFORT, KENTUCKY 40621

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A Note from the State Epidemiologist. . . .

The information on page 4 of this issue regarding changes in the characteristics of Kentucky's population is especially important because all of our data on health, disease, and injury can only be understood in reference to the population that is being measured. Too often we make the mistake of concentrating just on the disease events (= numerators) while ignoring what goes on with the people (= denominators). Even the derivation of the word **epidemiology** ("upon - people - study") reminds us that just as epidemiology is the foundation science of public health,[1] so people are the foundation of the science.

Reference:

1 *The Future of Public Health.* Institute of Medicine, Washington, DC; National Academy Press, 1988.

Department for Public Health

Executive Order 96-862, signed by Governor Paul E. Patton on July 2, 1996, renames the Department for Health Services. The new name is **Department for Public Health**.